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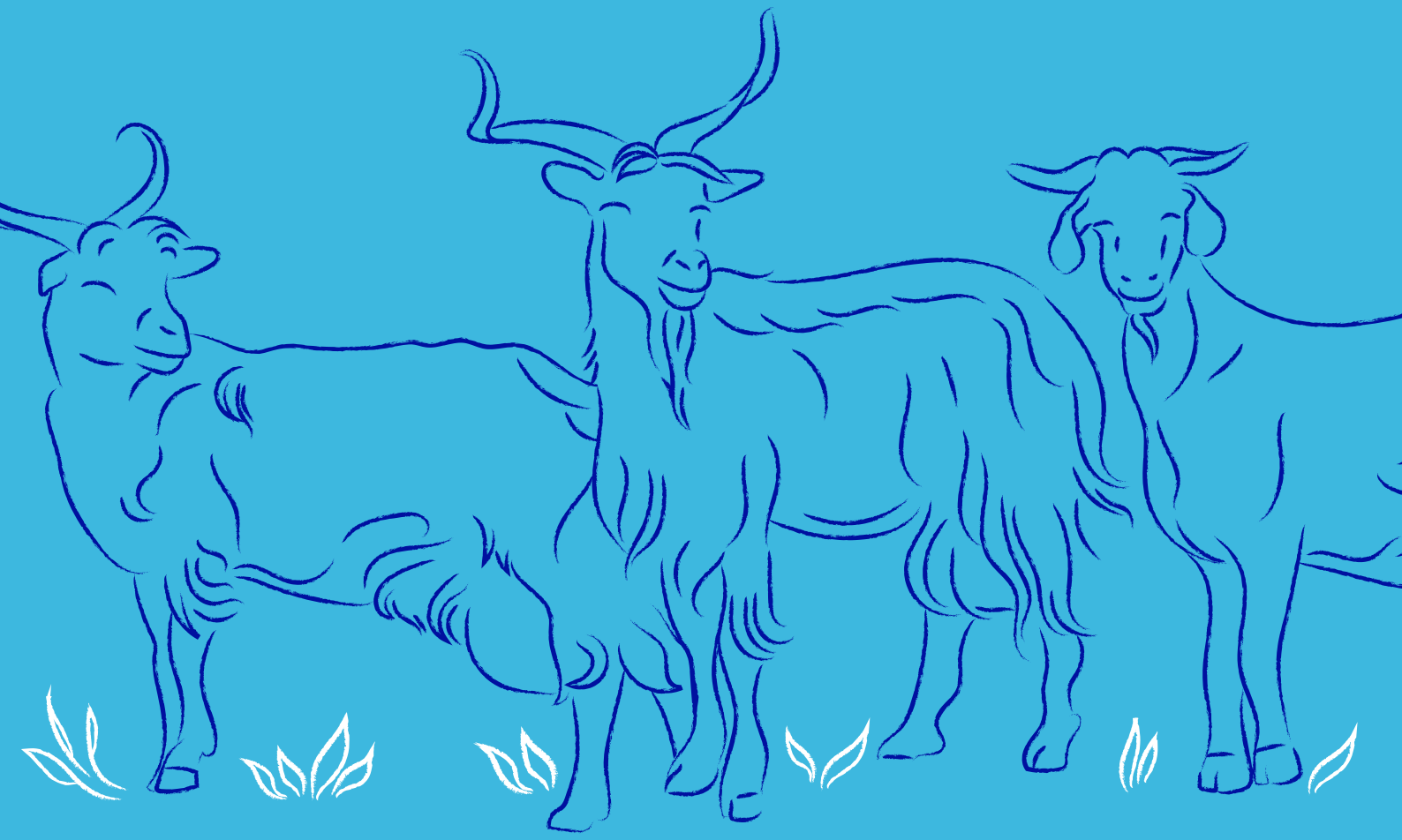

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Suitability of an infrared thermometer and a finger pulse oximeter to assess animal welfare in dairy goats

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Heart and respiratory rates provide relevant information about the animal health and welfare. These parameters are commonly recorded using a stethoscope which requires animal handling leading to stress. Given the importance of these physiological parameters, the present study aimed to validate a non-invasive method for measuring heart and respiratory rates using a human finger pulse oximeter. This study used 56 healthy Majorera dairy goats between the fifth and sixth month of lactation. Heart and respiratory rates were recorded using simultaneously a stethoscope and a finger pulse oximeter placed in the right teat. The Pearson correlation coefficient was determined using the CORR procedure of SAS 9.4 and the statistical significance was set as p 0.05. Results showed a high correlation between the pulse oximeter heart rate and stethoscope heart rate ($r= 0.829$; $p < 0.001$). However, the finger pulse oximeter was not able to record the respiratory rate and consequently no correlation was established. In conclusion, this study demonstrates that the pulse oximeter technology is a promising tool for measuring heart rate in dairy goats. Future research should focus on developing an appropriate non-invasive tool to accurately determine respiratory rate in these animals and to assess its practical applications and suitability for health and welfare status monitoring.